CLAIMS

What is claimed is:

1.   A telecommunications switch comprising:

a plurality of optical inputs;

a plurality of optical outputs;

an optical switch that operates with a schedule not directly determined by the input stream; and

a plurality of reordering units that rearrange the order of data units within data streams to correspond to the schedule of the switch.

10   2.   A telecommunications switch as claimed in claim 1 wherein the switch is a crossbar.

3.   A telecommunications switch as claimed in claim 1 wherein the reordering units rearrange the order of data units in an input data stream.

4.   A telecommunications switch as claimed in claim 1 wherein the reordering units
15   rearrange the order of data units in an output data stream.

5.   A telecommunications switch as claimed in claim 1 wherein the switch is a multi-stage interconnection network.

6.   A telecommunications switch as claimed in claim 1 wherein each reordering unit is a time-slot interchanger.

20   7.   A telecommunications switch as claimed in claim 6 wherein each time-slot interchanger contains a plurality of FIFOs.

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8. A telecommunications switch as claimed in claim 7 wherein the FIFOs are implemented as circular buffers in a single dual port memory.

9. A telecommunications switch as claimed in claim 1 where in the switch schedule is fixed and balanced.

10. A telecommunications switch as claimed in claim 1 wherein the switch schedule is unbalanced.

11. A telecommunications switch as claimed in claim 10 wherein the switch schedule is determined by the average load between inputs and outputs.

12. A telecommunications switch as claimed in claim 11 wherein the switch schedule is determined by the number of data units queued from each input for each output in time-slot interchangers.

13. The method of switching data streams comprising:

operating an optical switch with a schedule not directly determined by the input stream; and

rearranging the order of data units within data streams to correspond to the schedule of the switch.

14. A method as claimed in claim 13 wherein the switch is a crossbar.

15. A method as claimed in claim 13 wherein the rearranged data stream is an input data stream.

16. A method as claimed in claim 13 wherein the rearranged data stream is an output data stream.

17. A method as claimed in claim 13 wherein the switch is a multi-stage interconnection network.

18. A method as claimed in claim 13 wherein the data stream is rearranged in a time-slot interchanger.

5 19. A method as claimed in claim 18 wherein each time-slot interchanger contains a plurality of FIFOs.

20. A method as claimed in claim 19 wherein the FIFOs are implemented as circular buffers in a single dual port memory.

21. A method as claimed in claim 13 where in the switch schedule is fixed and
10 balanced.

22. A method as claimed in claim 13 wherein the switch schedule is unbalanced.

23. A method as claimed in claim 22 wherein the switch schedule is determined by the average load between inputs and outputs.

24. A method as claimed in claim 23 wherein the switch schedule is determined by
15 the number of data units queued from each input for each output in time-slot interchangers.

25. A telecommunications switch comprising:
    a plurality of optical inputs;
    a plurality of optical outputs;
    switch means for switching optical inputs to optical outputs with a
schedule; and

reordering means for rearranging the order of data units within data streams to correspond to the schedule of the switch means.